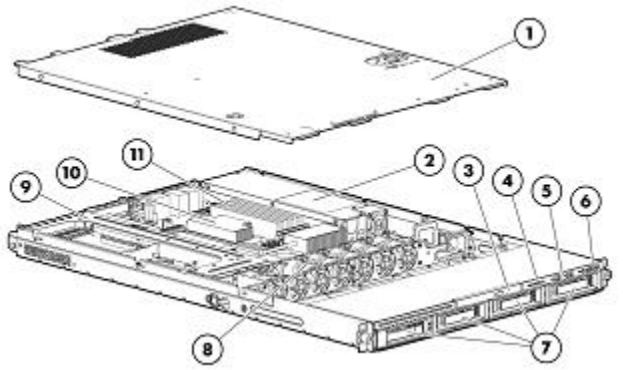
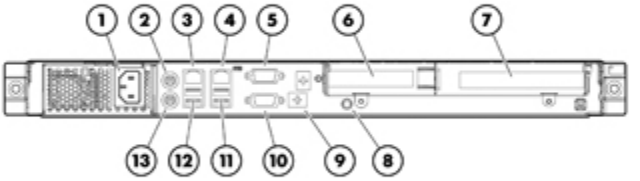
Overview





Front View:

1. Cover
2. Power Supply (400 Watt)
3. Optional Slim 9.5mm DVD ROM
4. Slide-out System Insight Display
5. Front USB connectors (2)
6. Power Button, UID Button, and Front LED Indicators
7. Support for up to four Non-Hot Plug SATA or SAS Hard Drives
8. Non Hot Plug Dual Rotor Fans (4)
9. Two PCI express Slots (one x16, one x4 Lanes)
10. Processor Socket (Intel® Xeon® Quad-Core)
11. Six PC3-10600E UB ECC DDR3 Memory Slots

Rear View:

1. Power supply cable socket
2. Mouse connector
3. NIC 1 connector
4. NIC 2 connector
5. Serial Connector
6. Expansion slot 2, PCI-e x8, Low-profile, Half-length
7. Expansion slot 1, PCI-e x16, Full high, Full-length
8. UID button/LED
9. Management NIC connector
10. Security - Trusted Platform Module Video connector
11. USB connectors (2)
12. USB connectors (2)
13. Keyboard connector

At a Glance

The HP ProLiant DL120 G6 Server is an entry-level rack-optimized server providing you with all confidence of a HP ProLiant server. The single processor, 1U server is ideal for single-application IT infrastructure, web and edge-of-network applications. The HP ProLiant DL120 provides two PCI-Express slots with an optional 3rd x4 PCI-Express slot optional upgrades, including HP HBAs and Smart Array Controllers, provide support for SAS hard disk drives. DL120 G6 HP Lights Out 100i Remote Management provides cost-effective remote management from anywhere, anytime. Plus, you get the cost-effective solution of a single-processor platform with the performance advantages of quad-core technology.

- **Processor**:
  - Intel® Xeon® processor X3400 series
  - Intel® 3420 Chipset with up to 1333MHz Front Side Bus (FSB)
- **Memory**:
  - 6 DIMM sockets
  - Supports up to 8GB, using 2GB PC3-10600E DDR3 Unbuffered (UDIMM) memory, operating at 1333MHz when fully populated at 2 DIMMs per Channel in 4 slots
  - Supports up to 16GB, using 4GB Quad-Rank PC3-8500R DDR3 Registered (RDIMM) memory, operating at 1066MHz when fully populated at 2 DIMMs per Channel in 4 slots
  - Supports up to 12GB, using 2GB PC3-10600R DDR3 Registered (RDIMM) memory, operating at 1333MHz when fully populated at 3 DIMMs per Channel in 6 slots
- **Storage Controller**:
  - Base Model: Integrated 6 Port SATA
    - (4 ports available for hard drives)
      NOTE: Transfer rate:3Gb/s SATA
  - Performance Model: HP Smart Array P212/256MB Controller (RAID 0/1/1+0/5/5+0)
- **Internal Drive Support**:
  - Up to 4 LFF SATA/SAS HDD drive bays
  - (1) Optional slim 9.5mm DVD-ROM or DVD RW

Overview

- **Network Controller**:
  - Embedded HP NC107i PCI Express Gigabit Server Adapter
- **Expansion Slots**:
  - Two total slots:
    - (1) Full length PCI Express Gen 2 x16 slot (x16 connector)
    - (1) Half-length, low-profile PCI Express x4 slot (x8 connector)
    - Optional (1) PCI-Express Gen 1 x1 (x4 connector)
- **USB 2.0 Ports**:
  - Up to 7 Total: (2) front; (1) internal; (4) rear accessible ports
  - Internal USB port (optional) for flexible storage, security, or USB drive key deployment
- **Infrastructure Management**:
  - HP ProLiant Onboard Administrator Powered by Lights-Out 100i simplifies server setup, health monitoring, control, and Lights-Out 100 remote administration. Can be upgraded with a Lights-Out 100i Advanced License for Virtual KVM (remote graphical console) and Virtual Media.
  - With G6, ProLiant 100-series server administrators are able to deploy and monitor their servers using methods similar to 300 series servers and above. Agents and the Easy Set-up CD are available that provide a user experiences consistent with 300 series and above.
    - With Easy Set-up CD, customers get SmartStart "like" deployment tools that reduce the time required for server setup and updates. Easy Set-up CDs and their ISO images are provided with each ProLiant G6 100-series server and are used to perform assisted installations for one or two servers. Users performing multi-server installations involving large numbers of servers may require the following deployment tools:
      - SmartStart Scripting Toolkit - Automated scalable deployment utility
      - Smart Components - a self-executable software consisting of driver and firmware
    - With agents and providers, ProLiant 100 series servers get environmental monitoring that is similar and consistent to that of ProLiant 300 series servers and above. This server now offers the HP Insight Management Agents and HP Insight Management WBEM Providers, two well established sets of management and Internet standards technologies that provide capabilities which provide integration to HP Systems Insight Manager (SIM).
- **Form Factor**:
  - 1U (1.7" / 4.32 cm) Rack Mount Chassis
  - 27.5" (69.85 cm) Deep
  - New fixed mounting rails included with all models
- **Warranty**:
  - This product is covered by a global limited warranty and supported by HP Services and a worldwide network of HP Authorized Channel Partners resellers. Hardware diagnostic support and repair is available for three years from date of purchase. Support for software and initial setup is available for 90 days from date of purchase. Enhancements to warranty services are available through HP Care Pack services or customized service agreements. Hard drives have either a one year or three year warranty; refer to the specific hard drive QuickSpecs for details.
    NOTE: Server Warranty includes 3 year Next Day Parts replacement, 0-Years Labor, 0-Years Onsite support. (3-1-1 warranty in APJ). Additional information regarding worldwide limited warranty and technical support is available at: http://h18004.www1.hp.com/products/servers/platforms/warranty/index.html

Standard Features

NOTE: For the Standard Features shipped in the "Factory Integrated Models", please see the "Configuration Information - Factory Integrated Models" section.

Processor One of the following depending on Model	**Quad-Core Processors** Intel® Xeon® processor HP X3430 (2.40GHz, 95W, 8MB, 1333, Turbo 1/1/2/3) Intel® Xeon® processor HP X3440 (2.53GHz, 95W, 8MB, 1333, HT, Turbo 1/1/2/3) **NOTE:** Available through Configure To Order only. See Factory Integration Models section for more details. Intel® Xeon® processor HP X3450 (2.67GHz, 95W, 8MB, 1333, HT, Turbo 1/1/4/4) Intel® Xeon® processor HP X3460 (2.80GHz, 95W, 8MB, 1333, HT, Turbo 1/1/4/5) **NOTE:** Available through Configure To Order only. See Factory Integration Models section for more details. Intel® Xeon® processor HP X3470 (2.93GHz, 95W, 8MB, 1333, HT, Turbo 1/1/4/5) **NOTE:** Available through Configure To Order only. See Factory Integration Models section for more details. **NOTE:** HT indicates that the processor model supports Intel® Hyper-Threading Technology. **NOTE:** Turbo indicates the maximum potential frequency increment when using Intel® Turbo Boost Technology, with 4, 3, 2, and 1 cores are active. **NOTE:** DDR3 speed is the maximum memory speed of the processor. Actual memory speed may depend on the quantity and type of DIMMs installed.
Cache Memory	Integrated 1x8MB Level3 Intel® Smart Cache
Chipset	Intel® 3420 Chipset
Memory Protection	ECC

Memory One of the following depending on Model	Type	DDR3 1066/1333MHz Unbuffered (UDIMM) and Registered (RDIMM)
	Standard (Base Models)	2GB (1x2GB) UDIMM
	Standard (Performance Models)	4GB (2x2GB) RDIMM
	Maximum Memory	Supports up to 8GB DDR3 1066/1333 Unbuffered ECC DIMM or 16GB DDR3 800/1066/1333 Registered DIMM. Supports up to 4 UDIMMs or 6 dual rank RDIMMs
	NOTE: Depending on the memory configuration and processor model, the memory speed may run at 1333MHz, 1066MHz, or 800MHz. Please see the Online Memory Configuration Tool at: www.hp.com/go/ddr3memory-configurator.	

Network Controller	Embedded NC107i Gigabit Server Adapter

Standard Features

Expansion Slots	Technology	Bus Width***	Connector Width	Bus Number*	Device No.**	Form Factor	Notes
1 (Standard)	PCIe G2	X16	x16	0	1	Full length, full height slot	
2 (Standard)	PCIe G1	X4	x16	0	28	Low profile slot	
1 (Optional)	PCI-X (133MHz, 3.3Volt)	64-bit	N/A	0	1	Full length, full height slot	

* Default bus assignment (in decimal). Inserting cards with PCI bridges may alter the actual bus assignment number.

** Slots are enumerated differently based on OS. MS OS's enumerate from lowest to highest Device ID by bus (starting with the lowest bus)

*** Indicates the number of physical electrical lanes running to a PCI-e connector.

Storage Controllers	Base Model	Integrated 6 Port SATA (4 ports available for hard disks) **NOTE:** Transfer rate: 3Gb/s SATA. **NOTE:** Hot Plug capability requires a Smart Array SAS Controller and the HP CA ASSY 384SATA to MINI-SAS Kit (P/N 591475-B21) must be ordered.	
	Performance Model	HP Smart Array P212/256MB Controller (RAID 0/1/1+0/5/5+0)	
Storage	Optical Drive	Optional 9.5mm DVD-ROM, or DVD-RW Drive	
	Hard Drives	Base Model (Pluggable drives capable)	Up to 4 non-hot plug SATA/SAS 3.5" drives supported. None ships standard **NOTE:** SAS requires optional HBA or SA card. **NOTE:** Support for additional SAS/SATA hot plug drives requires HP Smart Array Controller.
		Performance Model (Hot Pluggable)	Up to 4 hot plug SATA/SAS 3.5" drives supported. None ships standard
Maximum Internal Storage Type	Hot Plug SAS	1.8TB	(4 x 450GB) 3.5" SAS
	Non-Hot Plug SATA	3.0TB	(4 x 750GB) 3.5" SATA
Interfaces	Serial	1	
	Pointing Device	1	
	Keyboard	1	
	Graphics	1 (rear)	
	Network RJ-45	2	
	USB 2.0	7 (2 front, 1 internal, 4 rear) **NOTE:** Please see the following URL for additional information regarding USB support: http://h18004.www1.hp.com/products/servers/platforms/usb-support.html	
Graphics	64MB shared supports all display resolutions up to 1600 x 1200 16bpp @ 75Hz		

Standard Features

Form Factor		Rack (1U), (1.7 in/4.32 cm), 27.5" deep
Embedded Manageability	**HP ProLiant Onboard Administrator Powered by LO100i**	HP ProLiant Onboard Administrator Powered by Lights-Out 100i, simplifies server setup, control, and lights-out remote administration of ProLiant 100 Series servers and functions without additional software. It can be accessed from any location via LAN or Internet and works hand-in-hand with HP Systems Insight Manager (SIM), helping customers unlock the value of the ProLiant platform and deliver the highest possible quality of IT service to the business. Advanced Licenses are required for Virtual KVM and Virtual Media feature activation. Key features of LO100i are: • IPMI 2.0 & SMASH CLP support • ROM Setup Utility • Improvements to virtual media with the addition of USB 2.0 drives and protocol support for much faster transfer speeds and DVD-ROM support plus simplified virtual media (floppy and CD with no FTTP server requirements) • Enhanced browser interface and embedded KVM over IP provides OS-independent remote graphical console • 24x7 Technical Support and Update (TSU) 1 year support and license upgrades included in Advanced license **NOTE:** For more information, see: http://www.hp.com/go/lo100
HP Insight Control management software	**Insight Control server deployment**	HP Insight Control server deployment is a deployment solution for HP ProLiant and Integrity servers hosted on a Windows CMS. It automates the process of deploying and provisioning server software, enabling companies to quickly and easily adapt to changing business demands. Insight Control server deployment includes software optimizations for HP servers, including the HP scripting toolkits, configuration jobs for leading industry-standard operating systems, sample unattended files, and HP server support packs that include software drivers, management agents, and important documentation. Deploying servers can be accomplished either through imaging or through scripting. Insight Control server deployment is hosted on a Windows server and is intended for heterogeneous environments deploying Windows, Linux, VMware ESX and Microsoft Hyper-V systems. Insight Control server deployment includes one year of 24 x 7 HP Software Technical Support and Update Service ensuring rapid access to HP support staff and proactive delivery of software updates. For more information about this service, please visit: http://www.hp.com/services/insight.
Core Server Management	**ProLiant 100 Series G6 Core Management Software for ProLiant 100 Series Servers**	HP provides management solutions that are designed to simplify a server's installation, configuration, and maintenance throughout the entire server lifecycle. This provides the customers with higher levels of operational efficiency and highly reliable systems. While ProLiant 100 series G6 servers do not support the Insight Foundation Suite for ProLiant, they support a key subset of this important suite software tools and utilities which are very suitable for this class of server: SIM, SMH, agents, providers, and a SmartStart 'like' deployment CD called Easy Set-up which greatly simplifies server set-up. Additionally the ProLiant DL100 and SL100 G6 models support the SmartStart Scripting Toolkit (SSSTK), an automated scalable deployment utility.

		Information on core management supported on ProLiant 100 series G6 servers can be found at these URLS: • Core Management: http://www.hp.com/go/coremanagement • HP ProLiant 100 series Easy Set-up CDs: www.hp.com/servers/easysetup
Core Infrastructure Management	HP Systems Insight Manager	HP Systems Insight Manager (HP SIM) provides a unified, secure and extensible standards-based environment to centrally manage servers, storage and other infrastructure devices, (both HP and non-HP) across multiple operating system platforms.
	Insight Management Agents	HP Insight Management Agents and Insight Management Providers are available for HP Systems Insight Manager (SIM) Integration. ProLiant 100-series G6 servers can use the same SNMP based Insight Management Agents supported by other ProLiant servers. As a result, administrators can use HP Systems Insight Manager (SIM) 5.3 and greater to manage ProLiant 100-series G6 servers. Administrators can also use any other SNMP- based management tool. These agents are obtained as part of the ProLiant 100-series model-specific "Easy Set-up" CDs, or through http://www.hp.com/servers/easysetup The following capabilities are enabled on the 100-series G6 servers by the SNMP agents: • Health monitoring capabilities, including monitoring for drives, fans, network, power supplies, and temperature • Alerting capabilities, including basic alert notification for Smart Array drive pre-failure only • Performance monitoring capabilities providing information on processor, memory, disk free space, network utilization For additional information, please see: http://www.hp.com/go/insight
	Easy Set-up CD	Easy Set-up CDs are available on all 100-series G6 servers and are also available as an ISO image web download. HP ProLiant Easy Set-up CDs provide easy, step-by-step, single and multi-server server utilities for the ProLiant 100-series G6 servers to streamline server setup for 100-series G6 servers. The user experience is consistent with SmartStart and offers the following capabilities: • Boot environment and GUI • Assisted Installation: Windows 2003 Server and Windows 2008 Server drivers • Manual installation: Windows 2003 Server, Windows 2008 Server, and Linux drivers (specific OS support varies by server. Refer to each server's QuickSpecs for supported versions) • HP Insight Diagnostics • AutoRun • Array Configuration Utility (ACU) has been combined with Array Diagnostics Utility (ADU) to offer both configuration of array controllers and storage devices and testing of array controller hardware • SmartStart Scripting Toolkit (SSSTK) and Smart Components for software and drivers for DL100 and SL100 servers **NOTE:** OS and SW available for Manual Installation are listed on each servers' QuickSpecs.
	SmartStart Scripting Toolkit (SSSTK)	The SmartStart Scripting Toolkit is a server deployment product that delivers an unattended automated installation for high-volume server deployments. The SmartStart Scripting Toolkit includes a set of utilities for configuring and deploying servers in a customized, predictable, and unattended manner. These utilities enable you to duplicate the

Standard Features

		configuration of a source server on target servers with minimum user interaction. The Toolkit is designed for IT experts with experience in scripting operating system installations and configuring ProLiant server hardware. For additional information, please see: http://h18004.www1.hp.com/products/servers/management/toolkit/index.html
	Subscriber's Choice	Subscriber's Choice Driver and Support Alerts/Notifications is a web-based email subscription service that provides software and driver change notifications for ProLiant products. Sign up at: http://www.hp.com/go/subscriberschoice and customize your profile to receive various new alerts as they become available, on a weekly or monthly basis.
	ROMPaq, software and latest drivers	The latest software, drivers, and firmware fully optimized and tested for your ProLiant server and options; downloaded from Software and Drivers download pages website at: http://www.hp.com/go/support and from www.hp.com/servers/easysetup. Contains the following: • HP Insight Management Agents for Systems Insight Manager (SIM) Integration • HP Systems Management Homepage • Array Configuration Utility (ACU) • Array Diagnostics Utility (ADU) • HP Insight Diagnostics

Industry Standard Compliance	ACPI 3.0a PCI 2.3 Compliant PXE Support WOL Support Microsoft® Logo certifications USB 2.0 IPMI 2.0 DCMI 1.0
Intelligent Manageability	HP ProLiant Onboard Administrator Powered by the HP Integrated Lights-Out 100i with optional LO100i Advanced Licenses for Virtual KVM and Virtual Media. Embedded IPMI standard reporting Easy Set-up CD and ISO Image Web downloads Array Configuration Utility (ACU) Array Diagnostics Utility (ADU) HP Insight Diagnostics HP Insight Management Agents and Insight Management Providers for Systems Insight Manager (SIM) Integration
Security	Power-on password Keyboard password USB Port control Removable DVD-ROM Drive Assembly (optional) Dedicated/Shared LO100i management NIC port Administrator's password

Standard Features

Security - Trusted Platform Module	The TPM (Trusted Platform Module) is a microcontroller chip that can securely store artifacts used to authenticate the server platform. These artifacts can include passwords, certificates and encryption keys. Windows® BitLocker™ Drive Encryption (BitLocker) is a data protection feature available in Windows Server® 2008. BitLocker leverages the enhanced security capabilities of a Trusted Platform Module (TPM) version 1.2. The TPM works with BitLocker to help protect user data and to ensure that a server running Windows Server 2008 has not been tampered with while the system was offline. **NOTE:** For more information about TPM, including a white paper, go to www.hp.com/go/TPM **NOTE:** ProLiant OS pre-installed units will come with the partition required for TPM deployment. **NOTE:** The TPM key is unique to every TPM deployed server and must be retained. Misplacing or losing the key could result in data loss.
Server Power Cords	North America: One 6' Highline (IEC-IEC) power cord ships standard Japan: One 6' Highline (IEC) power cord and one 6' Lowline power cord ship standard ROW: One 6' Highline (IEC) power cord ships standard **NOTE:** HP ProLiant DL120 G6 server ship standard worldwide with a C13 to C14 2M Highline jumper cord. Japanese models also include a 2M Lowline power cord. If customers require a local power cord, they can check the power cord matrix for the appropriate country specific cord. Please see the following power cord matrix: http://www.hp.com/go/powercordmatrix.
Power Supply	Auto-sensing 400-Watt PFC Power Supply, CE Mark Compliant
UPS and PDU Power Cord Matrix	Please see the UPS and PDU cable matrix's on the HP Power Protection and Management page. Under Power Cords, click on the "HP Power Cord Matrix" link. That link will list cable descriptions, requirements, and specifications for UPS and PDU units. Please see the following link: www.hp.com/products/powercords.
System Fans	4 dual rotor fans ship standard.
Required Cabling	For required cabling information, refer to the Web site at: http://h10010.www1.hp.com/wwpc/us/en/sm/WF05a/15351-15351-3328412-241644-241475-3579703.html.
Operating Systems and Virtualization Software	Microsoft Windows Server Red Hat Enterprise Linux (RHEL) SUSE Linux Enterprise Server (SLES) **NOTE:** For more information on HP's Certified and Supported ProLiant Servers for OS and Virtualization Software and latest listing of software drivers available for your server, please visit our Support Matrix at: http://www.hp.com/go/supportos and our driver download page http://www.hp.com/support/DL120G6

Standard Features

Rack Airflow Requirements

Rack 10000 G2 series Cabinets
The increasing power of new high-performance processor technology requires increased cooling efficiency for rack-mounted servers. The 10000 G2 Series Racks provide enhanced airflow for maximum cooling, allowing these racks to be fully loaded with servers using the latest processors.

CAUTION: If a third-party rack is used, observe the following additional requirements to ensure adequate airflow and to prevent damage to the equipment:

- Front and rear doors: If your 42U server rack includes closing front and rear doors, you must allow 830 square inches (5,350 sq cm) of hole evenly distributed from top to bottom to permit adequate airflow (equivalent to the required 64 percent open area for ventilation).
- Side: The clearance between the installed rack component and the side panels of the rack must be a minimum of 2.75 inches (7 cm).

CAUTION: Always use blanking panels to fill all remaining empty front panel U-spaces in the rack. This arrangement ensures proper airflow. Using a rack without blanking panels results in improper cooling that can lead to thermal damage.
NOTE: For additional information, refer to the Setup and Installation Guide or the Documentation CD provided with the server.

Rack Kit

Quick deploy rail system provides tool-free support for racks with square or round mounting holes (including Compaq/HP 7000, 9000, 10000 G2 and HP series), with an adjustment range of 24" - 36". The ambidextrous cable management arm can be mounted on either the left or right side for improved cable management.

Telco Rack Kit

Installation into Telco 2 post, and 4 post, or threaded holes racks requires a 3rd party option kit. Go to: www.hp.com/go/rackandpower for more information.

HP Factory Express Capabilities

HP Factory Express offers configuration, customization, integration and deployment services for HP servers and storage products. Customers can choose how their factory solutions are built, tested, integrated, shipped and deployed.

Factory Express offers service packages for simple configuration, racking, installation, complex configuration and design services as well as individual factory services, such as image loading, asset tagging, and custom packaging. HP products supported through Factory Express include a wide array of servers and storage: HP Integrity, HP ProLiant, HP ProLiant Server Blades, HP BladeSystem, HP 9000 servers as well as the MSAxxxx, VA7xxx, EVA, XP, rackable tape libraries and configurable network switches.

For more information on Factory Express services for your specific server model please contact your sales representative or go to: http://www.hp.com/go/factory-express.

HP Enterprise Configurator

The HP eConfigure-Enterprise Configurator now provides factory default racking for our HP hardware portfolio. This approach is aligned with our strategic direction to meet the needs and expectations of our valued customers. If you require "custom" rack configuration, please contact HP's Customer Business Center or an Authorized Partner for assistance.
http://www.hp.com/products/configurator.

Standard Features

Service and Support

HP Care Pack Services provide total care and support expertise with committed response times designed to meet your IT and business needs.

HP Care Pack services include coverage for the HP branded hardware options qualified for the server that are purchased at the same time or afterward and internal to the enclosure. It also includes the 22-inch and smaller external monitors and tower UPS options up to 3kVA. These items will be covered at the same service level and for the same coverage period as the server. Coverage of UPS Battery is not included and standard warranty terms & conditions apply. For servers or storage systems installed within a rack, service also covers all HP qualified rack options installed within the same rack.

To fully capitalizing on your HP ProLiant servers' capabilities requires a service partner who thoroughly understands your server technology and systems environment. HP Services, an industry leader in provision of support solutions provides a range of support services designed to meet the varying needs of your business. Whether an SMB, or large global corporation, HP has ProLiant server support offers to help you speedily deploy and maximize system uptime.

Recommended Service - simplify ProLiant solution implementation, maintenance, and management.

- **Support** - 3-Year 24x7 4 hr Response service support coverage
- **Deployment Service** - HW Installation only

Enhanced Service - optimize service level to increase IT performance and availability.

- **Support** - 3-Year 24x7 24 hr Call to repair service support coverage
- **Support** -3-Year 24x7 6 hr Call to repair service support coverage
- **Support Plus** -24x7 4 hr Response service support including OS coverage

Refer to the information on the Installation of a ProLiant on the ProLiant Data Sheet; to be delivered on a scheduled basis 8am-5pm, M-F, excluding HP holidays.

NOTE: For a complete listing of service offerings and information visit:
http://www.hp.com/services/proliantservices
http://h20219.www2.hp.com/services/us/en/warranty/carepack-servers-proliant.html

Models

NOTE: For the Standard Features shipped in the "Factory Integrated Models", please see the "Configuration Information - Factory Integrated Models" section.

Base Model	**Processor**	(1) Intel® Xeon® processor X3430 (2.40GHz, 95W, 8MB, 1333, Turbo 1/1/2/3)
HP DL120 G6 X3430 Pluggable SATA 490931-xx1	**Cache Memory**	8MB Intel® Smart Cache
	Memory	2GB (1x2GB) PC3-10600E DDR3 UB ECC
	Network Controller	Embedded HP NC107i PCI Express Gigabit Server Adapter
	Storage Controller	HP Embedded 6 Port SATA Controller (4 ports for HDD)
	Hard Drives	None Ships Standard
	Internal Storage	Up to 4 large form factor Hot Plug drives (cold pluggable only) **NOTE:** Hot Plug support requires Smart Array Controller and HP CA ASSY 38" 4 SATA to MINI-SAS Kit (P/N 591475-B21).
	Optical Drive	None Ships Standard
	Power Supply	Auto-sensing 400-Watt PFC Power Supply, CE Mark Compliant
	Form Factor	1U

Performance Model	**Processor**	(1) Intel® Xeon® processor X3450 (2.67GHz, 95W, 8MB, 1333, HT, Turbo 1/1/4/4)
HP DL120 G6 X3450 HP SAS 490932-xx1	**Cache Memory**	8MB Intel® Smart Cache
	Memory	4GB (2x2GB) PC3-10600R DDR3 RDIMM
	Network Controller	Embedded HP NC107i PCI Express Gigabit Server Adapter
	Storage Controller	HP Smart Array P212/256MB Controller
	Hard Drives	None Ships Standard
	Internal Storage	Up to 4 large form factor Hot Plug drives
	Optical Drive	None Ships Standard
	Power Supply	Autosensing 400-Watt PFC Power Supply, CE Mark Compliant
	Form Factor	1U

Country Code Key	xx=00	US
	xx=29	Japan
	xx=37	APD (Asia excluding Japan)
	xx=42	EURO
	xx=AA	PRC

NOTE: This section lists some of the steps required to configure a Factory Integrated Model. To ensure only valid configurations are ordered, HP recommends the use of an HP approved configurator. Contact your local sales representative for information on CTO product offerings and requirements.
NOTE: HP does not allow factory integration of options into standard models listed above. Configure-to-order servers must start with a CTO Chassis.
NOTE: FIO indicates that this option only available as a Factory Installable Option.

Step 1: Base Configuration (choose one of the following configurable models)

Models	HP DL120G6 NHP CTO Chassis	490933-B21
	Includes:	
	Embedded NC107i Gigabit Server Adapter	
	1 full length PCI Express x16 slot (x16 lane) and 1 half length low profile PCI Express x4 slot (x8 lane)	
	Integrated 6 Port SATA Controller	
	Rack (1U) form factor, (1.7 in/4.32 cm)	
	Fixed, mounting rails	
	HP DL120G6 HP CTO Chassis	583183-B21
	Includes:	
	Embedded NC107i Gigabit Server Adapter	
	Hot-Plug drive cage, including cables	
	1 full length PCI Express x16 slot (x16 lane) and 1 half length low profile PCI Express x4 slot (x8 lane)	
	Integrated 6 Port SATA Controller	
	Rack (1U) form factor, (1.7 in/4.32 cm)	
	Fixed, mounting rails	

Step 2: Choose Required Options (only one of the following from each list unless otherwise noted)

Processor	Intel® Xeon® processor HP X3430 (2.40GHz, 95W, 8MB, 1333, Turbo 1/1/2/3), FIO	581869-L21
	Intel® Xeon® processor HP X3440 (2.53GHz, 95W, 8MB, 1333, HT, Turbo 1/1/2/3), FIO	578471-L21
	Intel® Xeon® processor HP X3450 (2.67GHz, 95W, 8MB, 1333, HT, Turbo 1/1/4/4), FIO	581870-L21
	Intel® Xeon® processor HP X3460 (2.80GHz, 95W, 8MB, 1333, HT, Turbo 1/1/4/5), FIO	578473-L21
	Intel® Xeon® processor X3470 processor (2.93GHz, 95W, 8MB, 1333, HT, Turbo 1/1/4/5), FIO	578475-L21
Memory	**Unbuffered with ECC DIMMs (UDIMM)**	
	HP 2GB 2Rx8 PC3-10600E Kit	500670-B21
	HP 1GB 1Rx8 PC3-10600E Kit	500668-B21
	Registered DIMMs (RDIMM)	
	HP 2GB 2Rx8 PC3-10600R-9	500656-B21
	HP 4GB 4Rx8 PC3-8500R-7 LP Kit	500660-B21
	NOTE: All DDR3 memory option kits consist of one DIMM per kit. For detailed memory configuration rules and guidelines, please use the Online DDR3 Memory Configuration Tool: www.hp.com/go/ddr3memory-configurator. **NOTE:** Kits described as LP include Low Power DIMMs. For more information on ProLiant Energy Efficient Features, see: www.hp.com/go/proliant-energy-efficient	
Hard Drives	**NOTE:** The components of a storage subsystem (e.g. the drive, the	

HBA/controller, firmware, and the server backplane) should operate at the same data transfer rate or the system bandwidth will be negotiated down to an acceptable level for all components.
NOTE: Hard drives have either a one year or three year warranty; refer to the specific hard drive QuickSpecs for details.
NOTE: The below Hard drives can only be selected with the Non-Hot Plug CTO Chassis (P/N 490933-B21)

	SAS Non-Hot Plug 3.5" Enterprise (ENT) Drives	
	HP 450GB 3G SAS 15K 3.5" DP NHP ENT HDD	454234-B21
	HP 400GB 3G SAS 10K 3.5" DP NHP ENT HDD	508232-B21
	HP 300GB 3G SAS 15K 3.5" DP NHP ENT HDD	417950-B21
	HP 146GB 3G SAS 15K 3.5" DP NHP ENT HDD	417855-B21
	SATA Non-Hot Plug 3.5" Midline (MDL) Drives	
	HP 750GB 3G SATA 7.2K NHP 3.5" MDL HDD	462595-B21
	HP 500GB 3G SATA 7.2K NHP 3.5" MDL HDD	458941-B21
	HP 250GB 3G SATA 7.2K NHP 3.5" MDL HDD	458939-B21
	SATA Non-Hot Plug 3.5" Entry (ETY) Drives	
	HP 160GB 3G SATA 7.2K NHP 3.5" ETY HDD	458947-B21

Step 3: Choose Additional Options for Factory Integration (only one of the following from each list unless otherwise noted)

Storage Controllers	**SAS Controllers (Required if NHP SAS Hard Drive selected in Step 2)**	
	HP Internal SAS/SATA 4-Port Cable **NOTE:** This cable option kit is automatically included in any CTO configuration when a HBA or SAS controller is selected with Hot Plug Chassis. Not supported with Non-hot plug (NHP) Chassis.	457692-B21
	HP Smart Array P212/256 MB w/Battery FIO	491191-B21
	HP Smart Array P212/256MB Controller	462834-B21
	HP Smart Array P212/Zero Memory (ZM) Controller	462828-B21
	NOTE: Any factory integrated Smart Array Controller purchase automatically includes the HP HBA SAS-SATA 4x1LN Cable Kit (P/N 452130-B21).	
Power Supply	HP 400W Power Supply FIO Kit	515739-B21
	HP 500W NHP Power Supply Option Kit	583437-B21

Step 4: Choose Additional Factory Integratable Options

NOTE: For additional options, please refer to the "Core Options and Additional Options" section below.

Core Options

NOTE: Some options may not be factory integratable. Contact your local sales representative for additional information.

Unique Options	HP Internal USB Cable G6 Kit **NOTE:** This option required to connect a USB device internally.	536769-B21
Memory (DIMMs)	**Unbuffered with ECC DIMMs (UDIMM)**	
	HP 2GB 2Rx8 PC3-10600E Kit	500670-B21
	HP 1GB 1Rx8 PC3-10600E Kit	500668-B21
	Registered DIMMs (RDIMM)	
	HP 2GB 2Rx8 PC3-10600R-9	500656-B21
	HP 4GB 4Rx8 PC3-8500R-7 LP Kit	500660-B21
	NOTE: All DDR3 memory option kits consist of one DIMM per kit. For detailed memory configuration rules and guidelines, please use the Online DDR3 Memory Configuration Tool: www.hp.com/go/ddr3memory-configurator. **NOTE:** Kits described as LP include Low Power DIMMs. For more information on ProLiant Energy Efficient Features, see: www.hp.com/go/proliant-energy-efficient	
Optical Drives	HP 9.5mm SATA DVD-ROM Optical Drive	481045-B21
	HP 9.5mm SATA DVD RW Optical Drive	481047-B21
Hard Drives	**NOTE:** The components of a storage subsystem (e.g. the drive, the HBA/controller, firmware, and the server backplane) should operate at the same data transfer rate or the system bandwidth will be negotiated down to an acceptable level for all components. **NOTE:** Hard drives have either a one year or three year warranty; refer to the specific hard drive QuickSpecs for details.	
	SAS Hot Plug 3.5" Enterprise (ENT) Drives	
	HP 450GB 3G SAS 15K 3.5 DP HDD	454232-B21
	HP 300GB 3G SAS 15K 3.5" DP HDD	416127-B21
	HP 146GB 3G SAS 15K 3.5" DP HDD	384854-B21
	SAS Hot Plug 3.5" Midline (MDL) Drives	
	HP 1TB 3G SAS 7.2K 3.5" DP MDL HDD	461137-B21
	HP 750GB 3G SAS 7.2K 3.5" DP MDL HDD	461135-B21
	SAS Non-Hot Plug 3.5" Enterprise (ENT) Drives	
	HP 450GB 3G SAS 15K 3.5" DP NHP ENT HDD	454234-B21
	HP 400GB 3G SAS 10K 3.5" DP NHP ENT HDD	508232-B21
	HP 300GB 3G SAS 15K 3.5" DP NHP ENT HDD	417950-B21
	HP 146GB 3G SAS 15K 3.5" DP NHP ENT HDD	417855-B21
	NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/12244_div/12244_div.html (Worldwide)	
	SATA Hot Plug 3.5" Enterprise (ENT) Drives	
	HP 160GB 3G SATA 7.2K 3.5in ETY HDD	458945-B21
	SATA Hot Plug 3.5" Midline (MDL) Drives	
	HP 1TB 3G SATA 7.2K 3.5in MDL HDD	454146-B21
	HP 500GB 3G SATA 7.2K 3.5in MDL HDD	458928-B21
	HP 250GB 3G SATA 7.2K 3.5" MDL HDD	458926-B21
	HP 750GB 3G SATA 7.2K 3.5" MDL HDD	458930-B21

Core Options

	SATA Non-Hot Plug 3.5" Midline (MDL) Drives	
	HP 750GB 3G SATA 7.2K NHP 3.5" MDL HDD	462595-B21
	HP 500GB 3G SATA 7.2K NHP 3.5" MDL HDD	458941-B21
	HP 250GB 3G SATA 7.2K NHP 3.5" MDL HDD	458939-B21
	SATA Non-Hot Plug 3.5" Entry (ETY) Drives	
	HP 160GB 3G SATA 7.2K NHP 3.5" ETY HDD	458947-B21
	NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/13201_div/13201_div.html (Worldwide	
	3.5" SATA Non-Hot Plug Drives	
	HP 250GB 1.5G SATA 7.2K NHP 3.5" HDD	411276-B21
	HP 160GB 1.5G SATA 7.2K NHP 3.5" HDD	411275-B21
	NOTE: The previous generation of 1.5G SATA drives are still supported. **NOTE:** Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/11940_div/11940_div.html (Worldwide)	
Communications	HP NC112T PCI Express Gigabit Server Adapter	503746-B21
	HP NC360T PCI Express Dual Port Gigabit Server Adapter	412648-B21
	HP NC364T PCI Express Quad Port Gigabit Server Adapter	435508-B21
	HP NC373F PCI Express Multifunction Gigabit Server Adapter	394793-B21
	HP NC373T PCI Express Multifunction Gigabit Server Adapter	394791-B21
	HP NC382T PCI Express Dual Port Multifunction Gigabit Server Adapter	458492-B21
	NOTE: Please see the QuickSpecs for Technical Specifications and additional information: www.hp.com/go/ProLiantNICs	
Power Supplies	HP 500W NHP Power Supply Option Kit	583437-B21

Additional Options

HP Insight Software	**HP Insight Control server deployment**	
	HP Insight Control server deployment, Electronic License including 1 year of 24x7 Technical Support and Updates **NOTE:** Electronic and Flexible-Quantity licenses can be used to purchase multiple licenses with a single activation key. **NOTE:** Electronic software is available in all countries except China and Japan. Customers in China and Japan should order the physical equivalent. **NOTE:** Customer will receive a license entitlement certificate. The license entitlement certificate must be redeemed online or via fax in order to obtain the license activation key(s). Includes one year of 24 x 7 HP Software Technical Support and Update Service. **NOTE:** Licenses ship without media. The Insight Software Media Kit can be ordered separately, or can be downloaded at: http://www.hp.com/go/insightcontrol (click on Download button). **NOTE:** For additional license options please see the Insight Control QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/12631_div/12631_div.html	T9082AAE
Security	HP Trusted Platform Module Option Kit	488069-B21
Storage Controllers	**SAS Controllers**	
	Smart Array P212 Controller	
	HP Smart Array P212/Zero Memory Controller	462828-B21
	HP Smart Array P212/256 MB Controller	462834-B21
	Smart Array P411 Controller	
	HP Smart Array P411/256 MB Controller	462830-B21
	HP Smart Array P411/512 MB Battery Backed Write Cache	462832-B21
	Optional Upgrades	
	256 MB Cache Module **NOTE:** Supported on HP Smart Array P212 Controller only.	462968-B21
	512MB BBWC **NOTE:** Supported on HP Smart Array P411 Controller only.	462967-B21
	Battery Kit upgrade **NOTE:** To enable BBWC on the 256MB cache. **NOTE:** Supported on HP Smart Array P212 Controller, and HP Smart Array P411only.	462969-B21
	HP Smart Array Advanced Pack No Media 1-Server license including 1yr 24x7 Technical Support **NOTE:** This part number can be used to purchase a single license or to order multiple licenses with a single activation key. Customers will receive a license entitlement certificate via e-mail. The license entitlement certificate must be redeemed online or via fax in order to obtain the license activation key(s). Include one year of 24x7 HP Software Technical Support Services.	516471-B21
	HP CA ASSY 38" 4 SATA to MINI-SAS Kit	591475-B21
	HP Internal SAS/SATA 4-Port Cable **NOTE:** The purchase of any HBA or HP Smart Array Controller requires the purchase of the 4 Lane SAS/SATA host fan out Cable Kit.	457692-B21
	SCSI HBA	
	HP SC11Xe Host Bus Adapter	412911-B21
	NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/13202_div/13202_div.html (Smart Array P411 Controller) http://h18000.www1.hp.com/products/quickspecs/13200_div/13200_div.html	

Additional Options

	(Smart Array Advanced Pack) http://h18000.www1.hp.com/products/quickspecs/12566_div/12566_div.html (SC11Xe HBA)	
Tape Storage	**NOTE:** For the complete listing of Tape Drive offerings, please see: http://www.hp.com/products1/storage/compatibility/tapebackup/ISS/index.html	
	Tape Drives	
	USB Rack-Mount Tape Solutions	
	HP StorageWorks 1U USB Rack-Mount Kit with one DAT 160 USB Tape Drive **NOTE:** Pre-configured with one DAT 160 USB tape drive.	AG703A
	SAS Rack-Mount Tape Solutions **NOTE:** HP recommends purchasing the HP SC44Ge HBA (416096-B21) for a dedicated SAS HBA for tape.	
	HP StorageWorks LTO-2 Ultrium 448 SAS Internal Tape Drive **NOTE:** Mounts inside the 1U SAS Rack-Mount Kit (AE459A)	DW085A
	SCSI Rack-Mount Tape Solutions **NOTE:** SCSI Controller required. HP recommends purchasing the HP SC11Xe HBA (412911-B21) for a dedicated SCSI HBA for tape.	
	HP StorageWorks 1U SCSI Rack-mount kit with one LTO-2 Ultrium 448 SCSI Tape Drive (Carbonite) **NOTE:** Pre-configured with one LTO-2 Ultrium 448 SCSI tape drive.	DW028B
Disk-Based Backup	**RDX Removable Disk Backup**	
	HP StorageWorks RDX160 External Removable Disk Backup System **NOTE:** 160GB of Disk Storage.	AJ766A
	HP StorageWorks RDX320 External Removable Disk Backup System **NOTE:** 320GB of Disk Storage.	AJ768A
	HP StorageWorks RDX500 External Removable Disk Backup System **NOTE:** 500GB of Disk Storage.	AJ935A
	NOTE: Please see the HP RDX Removable Disk Backup System QuickSpecs for additional information: http://h18000.www1.hp.com/products/quickspecs/13036_div/13036_div.html	
	D2D Backup	
	HP StorageWorks D2D120 Backup System with Data Protector Express Software Kit **NOTE:** 2TB of Disk Storage.	EH924A
	HP StorageWorks D2D130 Backup System with LTO-3 Ultrium 920 SAS Tape Drive **NOTE:** 3TB of Disk Storage.	EH952A
	HP StorageWorks D2D2503i Backup System **NOTE:** 3TB of Disk Storage.	EH945A
	HP StorageWorks D2D2504i Backup System	EJ002A
	NOTE: Please see the HP D2D Backup Systems QuickSpecs for additional information: http://www.hp.com/go/d2d	

Additional Options

HP StorageWorks Fibre Channel HBAs

NOTE: The following is a list of all Fibre Channel Host Bus Adapters for Windows and Linux. For detailed compatibility information please see: http://h18006.www1.hp.com/storage/saninfrastructure/hba.html

Emulex Fibre Channel HBAs

HP StorageWorks 81E 8Gb SP PCI-e FC HBA	AJ762A
HP StrorageWorks 82E 8Gb Dual-port PCI-e FC HBA	AJ763A
HP StorageWorks FC2142SR 4Gb PCI-e HBA	A8002A
HP StorageWorks FC2242SR Dual Channel 4 Gb PCI-e HBA	A8003A
HP StorageWorks FC2143 4Gb PCI-X 2.0 -to-Fibre Channel HBA	AD167A
HP StorageWorks FC2243 Dual Channel 4Gb PCI-X 2.0 HBA	AD168A

QLogic Fibre Channel HBAs

HP StorageWorks 81Q PCI-e FC HBA	AK344A
HP StorageWorks 82Q 8Gb Dual Port PCI-e FC HBA	AJ764A
HP StorageWorks FC1142SR 4Gb PCI-e HBA	AE311A
HP StorageWorks FC1242SR Dual Channel 4 Gb PCI-e HBA	AE312A
HP StorageWorks FC1143 4Gb PCI-X 2.0 HBA	AB429A
HP StorageWorks FC1243 Dual Channel 4Gb PCI-X 2.0 HBA	AE369A

HP StorageWorks Modular Smart Array

MSA SAN Storage Arrays

HP StorageWorks 60 Modular Smart Array Enclosure	418408-B21

NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/12627_div/12627_div.html

HP StorageWorks 70 Modular Smart Array	418800-B21

NOTE: Please see the Modular Smart Array 70 QuickSpecs for additional information including configuration steps and additional options needed for a complete solution at: http://h18000.www1.hp.com/products/quickspecs/12652_div/12652_div.html (Worldwide)

Uninterruptible Power Systems

HP Rack-mountable UPS

HP UPS R1500 G2

HP, R1.5kVA UPS, 1U, NA	AF419A
HP, R1.5kVA UPS, 1U, INTL	AF418A
HP, R1.5kVA UPS, 1U, JPN/TW	AF421A

NOTE: Please see QuickSpecs Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/12507_div/12507_div.html (Worldwide)

HP R3000 UPS

HP R/T3000 UPS, Low voltage, NA/JPN	AF452A
HP R/T3000 UPS, High voltage, NA/JPN	AF453A
HP R/T3000 UPS, High voltage, detachable inlet cord INTL	AF454A
HP R3000 VA UPS, 2U, DTC, INTL	AF414A
HP R3000 VA UPS, 2U, L5-30, NA	AF422A
HP R3000 VA UPS, 2U, L6-20, NA	AF423A
HP R3000 VA UPS, 2U, L6-20, JPN	AF424A
HP R3000 VA UPS, 2U, L5-30, JPN	AF425A

NOTE: Please see QuickSpecs Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/10671_div/10671_div.html (Worldwide)

HP R3000v Uninterruptible Power System

HP R3000v UPS — AF444A

NOTE: The R3000v is available in China and India only.

NOTE: Please see QuickSpecs Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/13129_div/13129_div.html (Worldwide)

HP Rack-Mountable R5500 UPS

HP R5500 VA UPS, INTL — AF416A

HP R5500 VA UPS, NA/JPN — AF426A

NOTE: Please see QuickSpecs Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/11871_div/11871_div.html (Worldwide)

Power Distribution Units

HP Monitored Power Distribution Unit: Full Rack Version

HP 17.3 kVA S2324 Monitored PDU- dual input, 3Ø, 24A (NA/JPN) — AF503A

HP 8.6 kVA S1324 Monitored PDU- single input, 3Ø, 24A (NA/JPN) — AF504A

HP 16.6 kVA S2140 Monitored PDU- dual input, 1Ø, 40A (NA/JPN) — AF505A

HP 8.3 S1140 Monitored PDU- single input, 1Ø, 40A (NA/JPN) — AF506A

HP 22.1 kVA S2316 Monitored PDU- dual input, 3Ø, 16A (INTL) — AF507A

HP 11 kVA S1316 Monitored PDU- single input, 3Ø, 16A (INTL) — AF508A

HP 14.7 kVA S2132 Monitored PDU- dual input, 1Ø, 32A (INTL) — AF509A

HP 7.3 kVA S1132 Monitored PDU- single input, 1Ø, 32A (INTL) — AF510A

HP Monitored Power Distribution Unit: Half Rack Version

HP 17.3 kVA S348 Monitored PDU- single input, 3Ø, 48A (NA/JPN) — AF916A

HP 22 kVA S332 Monitored PDU - single input, 3-phase, 32A (INTL) — AF917A

HP 4.9 kVA S124 Monitored PDU- single input, 1Ø, 24A (NA/JPN) — AF914A

HP 7.3 kVA S132 Monitored PDU- single input, 1Ø, 32A (INTL) — AF915A

Modular Power Distribution Units 1U/0U (Up to 32 outlets)

NOTE: 1U/0U mounting brackets shipped with the unit (optimized for 10000 and 9000 series racks).

HP Modular Power Distribution Units (mPDU), Low Volt Model, 24A (100-127 VAC) (NA, Japan) — 252663-D71

NOTE: This mPDU (252663-D71) may also be used to connect the low volt model of the UPS R3000 XR.

HP Modular Power Distribution Units (mPDU), High Volt Model, 24A (200-240 VAC) (NA, Japan) — 252663-D72

HP Modular Power Distribution Units (mPDU), High Volt Model, 32A (200-240 VAC) (Int'l) — 252663-B31

HP Modular Power Distribution Units (mPDU), High Volt Model, 40A (200-240 VAC) (WW) — 252663-B21

NOTE: This mPDU (252663-B21), 40A model has a hardwired input.

HP Modular Power Distribution Units (mPDU), High Volt Model, 16A (200-240 VAC) (WW) — 252663-B24

NOTE: This PDU has a detachable input power cord and allows for adaptability to country specific power requirements.

NOTE: Please see the following Modular Power Distribution Unit (Zero-U/1U

Modular PDUs) QuickSpecs for additional options including shorter jumper cables and country specific power cords: http://h18000.www1.hp.com/products/quickspecs/11041_div/11041_div.html (Worldwide)
NOTE: For additional information on HP Power Distribution Units including accessories please go to: www.hp.com/go/pdu.

HP Rack Series

HP Rack 5000 Series (Metallic Carbonite)

HP 5642 Rack-Unassembled	358254-B21

NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/12074_div/12074_div.html (Worldwide)
NOTE: For additional information regarding Rack Cabinets, please see the following URL: http://www.hp.com/go/rackandpower.

HP Rack 10000 Series (Graphite Metallic)

HP S10614 (14U) Rack Cabinet - Shock Pallet	292302-B22

NOTE: xxxxxx-B22 (shock pallet) used to ship racks with equipment installed (by custom systems, VARs and Channels).
NOTE: It is mandatory to use a shock pallet in order to ship racks with equipment installed.

NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/10995_div/10995_div.html (Worldwide)

NOTE: For additional information regarding Rack Cabinets, please see the following URL: http://www.hp.com/go/rackandpower.

HP Rack 10000 G2 Series (Graphite Metallic)

10642 G2 (42U) Rack Cabinet - Pallet	AF001A
10642 G2 (42U) Rack Cabinet - Shock Pallet	AF002A
10642 G2 (42U) Rack Cabinet 1200mm Deep - Pallet	AF038A
10642 G2 (42U) Rack Cabinet 1200mm Deep - Shock Pallet	AF034A
10642 G2 (42U) Rack Cabinet - Crated	AF003A
10642 G2 (42U) Rack Cabinet, with Extension - Shock Pallet	AF004A
10636 G2 (36U) Rack Cabinet - Pallet	AF011A
10636 G2 (36U) Rack Cabinet - Shock Pallet	AF012A
10636 G2 (36U) Rack Cabinet - Crated	AF013A
10636 G2 (36U) Rack Cabinet, with Extension - Shock Pallet	AF014A
10622 G2 (22U) Rack Cabinet - Pallet	AF021A
10622 G2 (22U) Rack Cabinet - Shock Pallet	AF022A
10842 G2 (42U) 800mm Wide Rack Cabinet - Pallet	AF041A
10842 G2 (42U) 800mm Wide Rack Cabinet - Shock Pallet	AF042A
10647 G2 (47U) Rack Cabinet - Pallet	AF031A
10647 G2 (47U) Rack Cabinet 1200mm Deep - Pallet	AF045A
10647 G2 (47U) Rack Cabinet 1200mm Deep - Shock Pallet	AF044A

NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/12402_div/12402_div.html (Worldwide)

NOTE: For additional information regarding Rack Cabinets, please see the following URL: http://www.hp.com/go/rackandpower.

Additional Options

HP Rack Options	**Keyboards and Monitors**	
	TFT7600 Rackmount Keyboard Monitor US	AG052A
	TFT7600 Rackmount Keyboard Monitor UK	AG053A
	TFT7600 Rackmount Keyboard Monitor GR	AG054A
	TFT7600 Rackmount Keyboard Monitor FR	AG055A
	TFT7600 Rackmount Keyboard Monitor IT	AG056A
	TFT7600 Rackmount Keyboard Monitor SP	AG057A
	TFT7600 Rackmount Keyboard Monitor DEN	AG058A
	TFT7600 Rackmount Keyboard Monitor NOR	AG059A
	TFT7600 Rackmount Keyboard Monitor SE/FI	AG060A
	TFT7600 Rackmount Keyboard Monitor SWI	AG061A
	TFT7600 Rackmount Keyboard Monitor PORT	AG062A
	TFT7600 Rackmount Keyboard Monitor BEL	AG063A
	TFT7600 Rackmount Keyboard Monitor JPN2	AG064A
	TFT7600 Rackmount Keyboard Monitor RUS	AG065A
	TFT7600 Rackmount Keyboard Monitor INTL	AG066A
	1U Rackmount Keyboard with USB, US	AG072A
	1U Rackmount Keyboard with USB, UK	AG073A
	1U Rackmount Keyboard with USB, GR	AG074A
	1U Rackmount Keyboard with USB, FR	AG075A
	1U Rackmount Keyboard with USB, ITL	AG076A
	1U Rackmount Keyboard with USB, SP	AG077A
	1U Rackmount Keyboard with USB, DEN	AG078A
	1U Rackmount Keyboard with USB, NOR	AG079A
	1U Rackmount Keyboard with USB, SE/FI	AG080A
	1U Rackmount Keyboard with USB, SWI	AG081A
	1U Rackmount Keyboard with USB, PORT	AG082A
	1U Rackmount Keyboard with USB, BEL	AG083A
	1U Rackmount Keyboard with USB, JPN2	AG084A
	1U Rackmount Keyboard with USB, RUS	AG085A
	1U Rackmount Keyboard with USB, INTL	AG086A
	NOTE: For additional information regarding Rack Options, please see the following URL: http://www.hp.com/go/rackandpower.	
	HP KVM Switch Options	
	2x1x16 IP Console Switch with Virtual Media	AF601A
	4x1x16 IP Console Switch with Virtual Media	AF602A
	NOTE: Cat5e cables are required to connect Interface Adapters to Console Switches. Cat5e cables can be found at the following URL: http://www.hp.com/go/kvm.	
	HP 1x4 Console Switch	AF611A
	USB Server Console Cable, 6 ft, 2 pack	AF613A
	NOTE: For additional information regarding KVM switches, Serial Console servers, rack mount monitors, keyboards and all related options please see the following URL: http://www.hp.com/go/kvm.	
	HP Serial Console Server Options	
	Server console switch 0x2x8	AF616A
	Server console switch 0x2x16	AF617A
	HP 16 Port Serial Console Server (worldwide)	AF101A
	HP 48 Port Serial Console Server (worldwide)	AF102A

Additional Options

	Serial Adapter, RJ45-DB9 DCE Female, 1 Pack	AF103A
	Serial Adapter, RJ45-DB9 DCE Female, 8 Pack	AF110A
	NOTE: Cat5e cables are required to connect Serial Adapters to Serial Console Servers. Additional Serial Adapters and Cat5e cables can be found at the following URL: http://www.hp.com/go/kvm.	
	NOTE: For additional information regarding KVM switches, Serial Console servers, rack mount monitors, keyboards and all related options please see the following URL: http://www.hp.com/go/kvm.	
USB Options	HP 1GB USB 2.0 Floppy Drive Key	442085-B21
Service and Support Offerings (HP Care Pack Services)	**Hardware Services On-site Service**	
	4-Hour On-site Service, 5-Day x 13-Hour Coverage, 3 Years, Electronic	UJ252E
	4-Hour On-site Service, 7-Day x 24-Hour Coverage, 3 Years, Electronic	UJ253E
	Hardware Services Next Business Day On-Site Service	
	9-Hour x 5-Day Coverage, 3 Years, Electronic	UJ251E
	Installation Services	
	Hardware Services 6-Hour Call to Repair On-Site Service	UJ254E
	Hardware Installation, Electronic	UJ261E
	NOTE: For more information, customer/resellers can contact: http://www.hp.com/hps/	

Memory

HP ProLiant DL120 G6 Models

NOTE: Memory configurations listed do not apply to "Factory Integrated Models".

Standard Memory

SATA Models:
2GB of PC3-10600E DDR3 UDIMM running at 1333MHz with ECC capabilities memory installed.

SAS Models
4GB of PC3-10600R RDIMM running at 1333MHz

Standard Memory Plus Optional Memory

Up to 8 GB memory is available with the optional installation of 4 x 2GB PC3-10600E UDIMM ECC DDR3 SDRAM DIMM Memory kits.
Up to 16GB memory is available with the optional installation of 4 x 4GB PC3-10600R RDIMM DDR3 SDRAM DIMM Memory kits

NOTE: The below chart does not represent all possible memory configurations.
NOTE: For best performance, it is recommended that customer installs memory in identical pairs (Slots 1 and 3 are interleaving pair. Slots 2 and 4 are interleaving pair).
Some DIMM installation guidelines are summarized below:

- For the HP ProLiant DL120 G6 server with six (6) memory slots
- There are two (2) channels per server
- There are three (3) DIMM slots for each memory channel; six (6) total slots
- Memory channel 1 consists of the three (3) DIMMs that are closest to the processor
- Memory channel 2 consists of the three (3) DIMMs that are furthest from the processor
- Different processor (CPU) has different memory support
- Do not mix Unbuffered memory (UDIMMs) with Registered memory (RDIMMs)
- Do not install DIMMs if the processor(CPU) is not installed
- It is not required, but it is recommended to load the channels similarly if possible
- Support up to 4 DIMMs (2 DIMMs per channel) max 8GB PC3 10600E (DDR3 1333 MHz)
- Support up to 4 DIMMs (2 DIMMs per channel) max 16GB PC3-8500R (DDR3-1066 MHz)
- Support up to 6 DIMMs (3 DIMMs per channel) max 12GB PC3-10600R (DDR3-1333 MHz) Support single double and quad ranks of DIMM
- Populate DIMMs from heaviest load (double-rank) to lightest load (single-rank) within a channel
- Heaviest load (DIMM with most ranks) within a channel goes furthest from the CPU

No mixing DIMM voltage; all DIMMs must be the same voltage

The UDIMM installing sequence:

	DIMM1E	DIMM2C	DIMM3A	DIMM4F	DIMM5D	DIMM6B
1 DIMMs	Empty	Empty	DIMM	Empty	Empty	Empty
2 DIMMs	Empty	Empty	DIMM	Empty	Empty	DIMM
4 DIMMs	Empty	DIMM	DIMM	Empty	DIMM	DIMM

The RDIMM installing sequence:

	DIMM1E	DIMM2C	DIMM3A	DIMM4F	DIMM5D	DIMM6B
1 DIMMs	Empty	Empty	DIMM	Empty	Empty	Empty
2 DIMMs	Empty	Empty	DIMM	Empty	Empty	DIMM
4 DIMMs	Empty	DIMM	DIMM	Empty	DIMM	DIMM
6 DIMMs	DIMM	DIMM	DIMM	DIMM	DIMM	DIMM

Following are memory options available from HP:

Unbuffered with ECC DIMMs (UDIMM)

HP 2GB 2Rx8 PC3-10600E Kit	500670-B21
HP 1GB 1Rx8 PC3-10600E Kit	500668-B21

Registered DIMMs (RDIMM)

HP 2GB 2Rx8 PC3-10600R-9	500656-B21
HP 4GB 4Rx8 PC3-8500R-7 LP Kit	500660-B21

NOTE: All DDR3 memory option kits consist of one DIMM per kit. For detailed memory configuration rules and guidelines, please use the Online DDR3 Memory Configuration Tool: www.hp.com/go/ddr3memory-configurator.

NOTE: Kits described as LP include Low Power DIMMs. For more information on ProLiant energy efficient features, see: www.hp.com/go/proliant-energy-efficient

1- 4 Four SATA or SAS drive bays

A Optical Drive Bay: Optional DVD-ROM, or DVD-RW drive

Drive Support

	Quantity Supported	Position Supported	Controller
Removable Media			
9.5mm IDE DVD-ROM or DVD-RW Drive	Up to 1	A	Integrated 6 Port SATA Controller **NOTE:** Transfer Rate: 3 Gb/s SATA.

NOTE: The components of a storage subsystem (e.g. the drive, the HBA/controller, firmware, and the server backplane) should operate at the same data transfer rate or the system bandwidth will be negotiated down to an acceptable level for all components.
NOTE: Hard drives have either a one year or three year warranty; refer to the specific hard drive QuickSpecs for details.

SAS Hot Plug 3.5" Enterprise (ENT) Drives

	Quantity Supported	Position Supported	Controller
450GB 3G SAS 15K DP 300GB 3G SAS 15K DP 146GB 3G SAS 15K DP	Up to 2	1-2	HP Smart Array P212 Controller

SAS Hot Plug 3.5" Midline (MDL) Drives

	Quantity Supported	Position Supported	Controller
1TB 3G SAS 7.2K DP 750GB 3G SAS 15K DP	Up to 2	1-2	HP Smart Array P212 Controller

SAS Non-Hot Plug 3.5" Enterprise (ENT) Drives

	Quantity Supported	Position Supported	Controller
450GB 3G SAS 15K DP 400GB 3G SAS 10K DP 300GB 3G SAS 15K DP 146GB 3G SAS 15K DP	Up to 2	1-2	HP Smart Array P212 Controller

Storage

SATA Non-Hot Plug 3.5" Midline (MDL) Drives

	Quantity Supported	Position Supported	Controller
750GB 3G SATA 7.2K 500GB 3G SATA 7.2K 250GB 3G SATA 7.2K	Up to 2	1-2	6 Port SATA controller with Embedded RAID **NOTE:** Transfer Rate: 1.5 Gb/s SATA.

SATA Non-Hot Plug 3.5" Entry (ETY) Drives

	Quantity Supported	Position Supported	Controller
160GB 3G SATA 7.2K	Up to 2	1-2	6 Port SATA controller with Embedded RAID **NOTE:** Transfer Rate: 1.5 Gb/s SATA.

3.5" SATA Non-Hot Plug Drives

	Quantity Supported	Position Supported	Controller
250GB 1.5G SATA 7.2K 160GB 1.5G SATA 7.2K	Up to 2	1-2	6 Port SATA controller with Embedded RAID **NOTE:** Transfer Rate: 1.5 Gb/s SATA.

External Storage

	Quantity Supported	Position Supported	Host Controller or Adapter
60 Modular Smart Array Enclosure	Up to 8 Up to 8	External	HP Smart Array P411/256MB Controller
70 Modular Smart Array Enclosure	Up to 4 Up to 4	External	HP Smart Array P411/256MB Controller

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Maximum Storage Capacity - (SAS drives)

Internal	1.8TB (4 x 450GB SAS)
External	6.30TB (1 x (14 x 450GB SAS))
Total	8.10TB

Maximum Storage Capacity - (SATA Drives)

Internal	3.0TB (4 x 750GB SATA)
External	9.0TB [1 x (12 x 750GB SATA)]
Total	11.0TB

NOTE: In order to implement integrated SATA RAID with Easy 'set-up CD' on Windows 2000/2003, the use of a floppy drive is necessary.

Tape and Disk-Based Backup

NOTE: For a complete listing of compatible tape and disk-based backup offerings, please visit: www.hp.com/go/connect.

Storage

	Position Supported	Controller	Controller Part Number
HP StorageWorks USB Tape DAT 72 USB DAT 160 USB 1U USB Rack-Mount Kit	External	USB 2.0 Port	N/A
HP StorageWorks RDX Removable Disk Backup System RDX160 RDX320	External	USB 2.0 Port	N/A
HP StorageWorks D2D Backup Systems D2D120 D2D130 D2D2503i D2D2504i	External	Embedded Network Controller	N/A

System Unit	**Dimensions** (H x W x D) (with bezel)	4.32 x 44.81 x 70.0 mm (1.69" x 17.64" x 27.56")	
	Weight (approximate)	Maximum (four hard drives, power supply, and processor installed)	31.49 lb (14.3kg)
		Minimum (one hard drive, power supply, and processor installed)	28.2lb (12.8kg)
	Input Requirements (per power supply)	Range Line Voltage	90 - 132 VAC, 180 - 264 VAC
		Rated Input Current	6 A (at 100 VAC), 3 A (at 200 VAC)
		Rated Input Frequency	47 to 63 Hz
		Rated Input Power	<550W (at 100 VAC) 550W (at 200 VAC)
	BTU Rating	Maximum	1314 BTU/hr (at 100 VAC), 1314 BTU/hr (at 200 VAC)
	Power Specifications	To review typical system power ratings use the Power Advisor which is available via the online tool located at URL: www.hp.com/go/proliant-energy-efficient or www.hp.com/go/hppoweradvisor - Click on the system of interest. Example: DL120 G6 - Follow the instructions of the next screens.	
	Power Supply Output (per power supply)	Rated Steady-State Power	400 W (at 100 VAC), 400 W (at 200 VAC)
		Maximum Peak Power	430 W (at 100 VAC), 430 W (at 200 VAC)
	System Inlet Temperature	Operating	10° to 35°C (50° to 95°F) at sea level with an altitude derating of 1.0°C per every 305 m (1.8°F per every 1000 ft) above sea level to a maximum of 3050 m (10,000 ft), no direct sustained sunlight. Maximum rate of change is 10°C/hr (18°F/hr). The upper limit may be limited by the type and number of options installed. System performance may be reduced if operating with a fan fault or above 30°C (86°F).
		Non-operating	-30° to 65°C (-22° to 149°F). Maximum rate of change is 20°C/hr (36°F/hr).
	Relative Humidity (non-condensing)	Operating	10 to 90% relative humidity (Rh), 28°C (82.4°F) maximum wet bulb temperature, non-condensing.
		Non-operating	5 to 95% relative humidity (Rh), 38.7°C (101.7°F) maximum wet bulb temperature, non-condensing.
	Altitude	Operating	3050 m (10,000 ft). This value may be limited by the type and number of options installed. Maximum allowable altitude change rate is 457 m/min (1500 ft/min).
		Non-operating	9144 m (30,000 ft). Maximum allowable altitude change rate is 457 m/min (1500 ft/min).

Technical Specifications

	Acoustic Noise	Listed are the declared A-Weighted sound power levels (LWAd) and declared average bystander position A-Weighted sound pressure levels (LpAm) when the product is operating in a 23°C ambient environment. Noise emissions were measured in accordance with ISO 7779 (ECMA 74) and declared in accordance with ISO 9296 (ECMA 109).	
		Idle	
		LWAd	6.30 B
		LpAm	44.1 dBA
		Operating	
		LWAd	6.34 B
		LpAm	44.4 dBA
	Emissions Classification (EMC)	**FCC Rating**	Class A
		Normative Standards	CISPR 22; EN55022; EN55024; FCC CFR 47, Pt 15; ICES-003; CNS13438; GB9254; EN 61000-3-2; EN 61000-3-3; EN 60950-1; IEC 60950-1
		NOTE: Product conformance to cited product specifications is based on sample (type) testing, evaluation, or assessment. This product or family of products is eligible to bear the appropriate compliance logos and statements.	
Power Supply	**Input voltage specifications**	Rated input voltage	100 VAC to 240 VAC
	Input Specifications	Rated input line	90 VAC to 264VAC
		Frequency range	47 to 63 Hz
		Rated input power	@ 115V input, Rated input power = 500W (assume output wattage=400W @ 230V input, Rated input power = 500W (assume output wattage=400W)
		Rated input current	6 A, 3 A (110 V, 220 V)
		Steady state power	400W (rated)
	BTU Rating	1710 BTU/hr	
	Ambient temperature range	Operating	41° to 122° F (5° to 50° C)
		Non-operating	-40° to 167° F (-40° to 75° C)
	Relative humidity (non-condensing)	Operating	5% to 95%
		Non-operating	5% to 95%
	Dielectric voltage withstand	Input to output	2150 VDC minimum, withstand 1 min
		Input to ground	2150 VDC minimum, withstand 1 min
	Maximum Wet Bulb Temperature	104° F (40° C)	

Technical Specifications

Integrated Serial ATA Controller	**Simultaneous drive transfer channels**	4 channels
	Transfer rate synchronous (maximum theoretical)	150 MB/s per channel; 300 MB/s in RAID 0 pair
	Data transfer method	Intel® 82801IR Integrated Serial ATA Host Controller (non-RAID mode) Intel® 82801IR Integrated Serial ATA Host Controller (RAID Mode)
	Drive support	Serial ATA
	Data transfer modes	Legacy Mode Combined Mode
	Protocol	Serial ATA
	Feature	NCQ (Native Command Queuing); AHCI (Advanced Host Controller Interface)
	RAID levels supported	0, 1
	RAID Features	Supports multiple logical volumes Setup through ROM based Array Configuration Utility Installation scripting support **NOTE:** This controller does not support Hot Plug functions or LED functions.
	RAID OS Support	Microsoft Windows Server 2003 **NOTE:** In order to implement integrated SATA RAID with Smart Start 7.90 on Windows 2000/2003, the use of a floppy drive is necessary. Linux (Red Hat, SuSE, UnitedLinux)

Embedded HP NC107i PCIe Gigabit Server Adapter	**Network Interface**	10Base-T/ 100Base-TX/ 1000Base-TX	
		Combines a triple-speed IEEE 802.3TM - Compliant Media Access Controller (MAC) with a triple-speed Ethernet transceiver.	
	Compatibility	IEEE 802.3 10Base-T	
		IEEE 802.3ab 1000Base-T	
		IEEE 802.3u 100Base-TX	
	Data Transfer Method	Four lane (x4), 100MHz PCI Express Reference Clock	
	Network Transfer Rate	10Base-T (Half-Duplex)	10 Mb/s
		10Base-T (Full-Duplex)	20 Mb/s
		100Base-TX (Half-Duplex)	100 Mb/s
		100Base-TX (Full-Duplex)	200 Mb/s
		1000Base-TX (Half and Full-Duplex)	2000Mb/s
	Connector	RJ-45 connector	
	Cable Support	10Base-T	Categories 3, 4 or 5 UTP; up to 328 ft (100 m)
		10/100/1000Base-TX	Category 5 UTP; up to 328 ft (100 m)

Environment-friendly Products and Approach	**End-of-life Management and Recycling**	Hewlett-Packard offers end-of-life HP product return, trade-in, and recycling programs in many geographic areas. For trade-in information, please go to: http://www.hp.com/go/green. To recycle your product, please go to: http://www.hp.com/go/green or contact your nearest HP sales office. Products returned to HP will be recycled, recovered or disposed of in a responsible manner. The EU WEEE directive (2002/95/EC) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the Hewlett Packard web site at: http://www.hp.com/go/green. These instructions may be used by recyclers and other WEEE treatment facilities as well as HP OEM customers who integrate and re-sell HP equipment.

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For hard drives, 1GB = 1 billion bytes. Actual formatted capacity is less.